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## NOTES.

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### LABOR AS A MEASURE OF EXCHANGE VALUE.

THE fact that the ratio in which commodities exchange is influenced in a greater or less degree by the amount of labor necessary in their manufacture—whether immediately, as in the case of commodities in the manufacture of which only one stage is involved, or mediately, as in the case of commodities in the manufacture of which several stages are involved—is too obvious for controversy. There does not, however, seem to have been an accepted reduction of the elements of price to terms of labor which would warrant the formula that the ratio in which commodities exchange, tends toward identicalness with the ratio in which the number of units of labor required for the production of the one stands to the number of units of labor required for the production of the other.

The usefulness of such a formula, if its correctness can be proved, is apparent. It would furnish a basis for calculating the proportion of the price of a commodity which should go to capital and labor respectively, and would thus render valuable assistance in the consideration of many problems now pressing for solution. For example, in investigating the economic effects of the use of machinery, the most important problem involved relates to the disposition of the savings resulting from the lowering of the cost of production. Do they go to labor or capital, or both; and what fixes the proportion? It is evident that no solution of this problem is practicable until the point is found at which the compensation of labor and capital will be in equilibrium; and the formula indicating this point will at the same time furnish a basis from which the proportion of the price of a commodity attributable to labor and capital, respectively, can be calculated.

In connection with this problem, it has been demonstrated that in every producing society there is a movement toward a state of equilibrium, usually called the static state.<sup>1</sup> This movement can be illus-

<sup>1</sup> An interesting description of the difference between the static and dynamic states is given by Professor Clark in his "Natural Divisions in Economic Theory," published in the *Quarterly Journal of Economics* for January 1899. Anyone accustomed to what we may call, for convenience, the "marginal theories," should take notice that while

trated by a simple example. If we postulate a society in which one occupation affords a greater compensation to the labor employed in it than is afforded in other occupations in which the same grade of labor is required, we can see that there will be a flow of labor from the less favored occupations into the occupation affording the greater compensation ; and this flow will continue until the compensation of labor in that occupation will be in equilibrium with the compensation of labor in other occupations. Applying this example to the existing complicated conditions, in which the compensation of labor diverges to a greater or less extent from the point of equilibrium, it is obvious that whatever the occupation in which it is employed, there is always a tendency toward uniformity in the compensation of labor of the same grade. The same principle can be applied to the case of labor of different qualities. There is an equilibrium between high-grade labor and low-grade labor based upon productivity.

Obviously capital moves toward the condition of equilibrium, even more quickly than labor, because it can be more readily shifted from one occupation to another. It might be decades before the compensation of labor in an occupation in which it was above the point of equilibrium would be reduced to that point by means of the influx of labor ; but in any case in which capital received a compensation which was above the point of equilibrium, the influx of capital would lower it to its proper point within a few years.

The static state represents a society in which the movement toward an equilibrium has been completed. It is used as a basis of economic reasoning in order to avoid those complications which exist during the period of imperfect adjustment and which are, therefore, more or less transitory. If there were no method by which those great principles which form the foundation of an economic society could be considered free from the disturbing influences which mask their operation, it is evident that the explanation of economic phenomena would be a task which would tax the intellect to its utmost power, if, indeed, it would not entirely transcend its grasp. But by separating the permanent

the results of these theories, if sound, will always apply in the static state, yet, in considering economic problems in this state, it would be impracticable to use the same terminology because the conditions requiring it are not present. The word "marginal," for instance, can only be used when dynamic conditions are under consideration. The conditions requiring its use are not typified in the static state. Similarly there is no least expensive increment or most expensive increment in the static state.

from the transitory conditions--by attributing completeness to the action of the forces in operation--the framework upon which society is built can be clearly exposed and the relations between the various constituents traced with comparative ease. Any principles which apply in the static state must of necessity apply in actual life. In the first case, however, the operation of the principles, being unimpeded, is easily discerned; in the second case, their operation is frequently difficult to trace in the *mêlée* of conflicting forces.

It must also be borne in mind that while there is, at any given moment of time, a certain framework upon which society tends to arrange itself, this framework is itself in process of change, representing in its completed condition a state of complete development, both of men and materials. Into this branch of the subject it is impracticable to enter in the present article. Enough has been said to give a fair idea of what the static state is and to show how far the principles arrived at in the static state will apply to conditions in actual life.

The static state is characterized by the following phenomena. Every unit of labor and capital is employed in the occupation for which it is best adapted. The exact amount of labor and capital needed is at hand and there is no more to be had. There is no movement of labor or capital upward, downward or laterally, because there is no inducement for such a movement. Moreover all labor is of equal dignity.<sup>1</sup> There are no dynamic changes of any kind; no new inventions; no consolidations or combinations. The population is stationary. Birth, growth, and death are not permitted to cause any derangement of the system.

It has been shown that in the static state the product of a unit of labor in one occupation exchanges for the product of a unit of labor

<sup>1</sup> In the static state it is necessary to regard all labor as of equal dignity in order to be able to say that the proportion of the total product distributed to each person constitutes his sole compensation. It is obvious that in actual life the indirect compensation afforded by a high position sometimes outweighs, by a thousandfold, the direct compensation. For instance, the compensation of the office of Justice of the Supreme Court of the United States or President is, to a right-minded man, almost inexpressible in terms of money. To express such indirect compensation, it would be necessary to go far beyond the idea of a distributive share of the product of the society and take into consideration many motives which are not properly economic. It is not, however, intended to say that such motives must be disregarded by the economist. On the contrary they should never be out of mind; but no method has yet been devised for expressing indirect compensation in such a way that it can be divided into units of compensation as can be done with material commodities.

in any other occupation ; and similarly that the product of a unit of capital in one occupation exchanges for the product of a unit of capital in any other occupation. We can, therefore, draw the deduction that in the static state the compensation of every unit of labor is an amount equivalent to the proportion of the total product imputable to labor, divided by the number of units of labor employed ; and the same remark, changing terms, applies to capital.

Applying these principles to the solution of the problem, "What disposition is made of savings in cost of production ?" it will be seen that, as the labor and capital released will either seek employment in new fields or will expand the old, the result will be that the distributive share of each unit of labor or capital, as the case may be, will be increased, because the total product will have been increased while the number of units of labor and capital remained the same.

This reasoning is, however, incomplete. It furnishes no method by which it can be shown that savings in labor will inure to the benefit of capital as well as of labor and savings in capital to the benefit of labor as well as of capital. The point of equilibrium in the compensation of labor and capital has not been indicated. There is no method by which it can be shown in what proportion the product of a unit of labor will exchange for the product of a unit of capital. And it is evident that this object can be maintained in but one way ; *i. e.*, by the reduction of the compensation of capital to terms of the compensation of labor.

Expressing, then, in terms of labor alone, the result of savings in cost of production, we should be justified in saying that, as the amount of labor necessary for the production of the amount of the particular commodities previously produced would be less, and as the labor released would either flow into other channels and produce other commodities or would produce a greater quantity of the same commodities, the compensation of each unit of labor would eventually be increased, because the total amount of product would be increased while the number of units of labor remained the same.

The general tendency having been thus outlined, the investigation could be directed into the problems arising from disturbances of the equilibrium caused by the conflict of the almost innumerable forces in operation.

In attempting to make a reduction of the elements of price to terms of labor, it is necessary, in order to avoid complication, to arrive first at the ratios in which things exchange in the static state, and then to apply the principles arrived at to conditions actually existing.

A miniature of the static state is furnished by Professor Clark in the following example :

A'''	B'''	C'''	H'''
A''	B''	C''	H''
A'	B'	C'	H'
A	B	C	H

In the above example, A represents one kind of raw material, B a second, and C a third. A' represents A advanced one stage toward completion; A'' represents the same material further advanced; and A''' represents it finished and ready for consumption. To use Professor Clark's example, let A represent the skin of a live steer on a western ranch, A' raw hide, A'' tanned leather, and A''' shoes. The B and C groups show a similar development in their materials.

H represents raw material used in the construction of tools, and H''' the tools themselves used in the production of A''', B''', and C'''. In each case it is assumed that all of the tools are consumed and that the H group repairs the waste.

The above example represents in miniature a producing society which has arrived at a condition of equilibrium. Groups A, B, and C represent all materials in process of production except those materials included in group H; and group H represents capital in all its forms. The product of each unit of labor employed in producing A''', exchanges for the product of each unit of labor and capital employed in producing B''', C''', or H'''. H''' is produced entirely by labor, the complication of the use of capital in the production of capital being ruled out.

It will be observed that in the static state the various commodities exchange in proportion to the amounts of labor and capital expended in their production. For instance, premising that the same amount of labor and capital is expended in each of the stages in the above example, A''' will not only exchange for B''', but also for B'' plus H; C'' will exchange for H plus A plus C, and so on for other combinations.

Now, inasmuch as each of the various stages through which H passes to arrive at H''' is merely the application of more labor, the cost of production of H''' will be the compensation of the total amount of labor expended, and this amount would be included in the price of A''', B''', or C'', as the case might be. We can, therefore,

say that in the static state commodities exchange in proportion to the amount of labor necessary to produce them. For example, if it required ten days' labor to procure H, ten days' labor to transform H into H', ten days' labor to transform H' into H'', and ten days' labor to transform H'' into H''', the price of H''' would be forty days' labor. If now it required forty days' additional labor to produce A''' with the aid of H''', the price of A''' would be eighty days' labor. In this case then it is obviously proper to say that the cost of production of A''', B''', and C''' would be the compensation of the labor necessary to produce H''', plus the compensation of the labor necessary to develop A, B, and C with the aid of H''', and the various commodities would exchange in the corresponding ratio.

In the above argument we have not dealt with two complications which are met with in actual life and which must now be in the static state. These two complications are :

1. The use of capital in the production of capital ;
2. The lending of capital.

The first of these complications can obviously be disposed of by the method of reasoning used to reduce A''' to terms of labor. It is evident that as the first tool (capital) must have been made by labor alone, and as the price of each tool subsequently made must have been the amount of the compensation of the labor used in the construction of the tools necessary in its production, plus the compensation of the additional labor required, the vast accumulation of capital which exists at present, if traced back to its sources, represents an investment of different kinds and quantities of labor, the compensation of which has at every stage tended toward a condition of equilibrium in which the compensation for each unit would be the equivalent of its product. Therefore, the complication arising from the use of capital in the manufacture of capital can be disposed of by resolving each successive increment of capital into the labor necessary for its production.

Let us now take up the consideration of the second complication, which involves the phenomenon of interest. Speaking generally, it can be said that inasmuch as the cost of production of capital can be expressed in terms of labor, the compensation for the lending of capital must tend toward equilibrium with the compensation of labor engaged in other occupations. This result would follow, because if labor could obtain a greater compensation by producing capital and lending it than it could obtain by producing articles for consumption,

it would flow into the production of capital until the amount of capital became so great that the compensation for the loan of it would be reduced to such a point that the compensation of the labor engaged in the production and lending of capital would be in equilibrium with the labor engaged in other occupations.

In the transaction mentioned above, the producer of  $H'''$  sold his product for cash. Let us now assume that he lends his  $H'''$  to the producer of  $A'''$  instead of selling it to him. What will he receive from the producer of  $A'''$  for its use? It being premised that the  $H'''$  is entirely consumed by the producer of  $A'''$ , the amount of the cost of production must in any event be returned. This item has already been reduced to terms of labor. After repayment of the cost of production, there is in the static state only one other element of interest to be dealt with, viz.: the compensation of the capitalists for waiting. This compensation can be expressed as the compensation of the foresight and energy required to foresee the need and produce in anticipation of filling it; and will, therefore, tend toward equilibrium with the compensation of labor of other kinds and qualities, because if it were to reach a point at which it was out of equilibrium, labor would flow from other occupations into the manufacture and lending of capital, thus reducing the compensation for the use of capital to its proper point.<sup>1</sup>

While this question of interest is apparently simple in the static state, yet, because of its complexity in actual life, it is the bugbear of economists. It would seem, however, from the above example that this complexity is not due to the nature of interest in the static state, but springs from such causes as scarcity of capital, uncertainty of investment, political disturbances, and the other thousand and one considerations which influence the market rate. But however much these influences may cause the rate of interest to diverge at any given time from the point of equilibrium, the forces of what we may call economic

<sup>1</sup> It will be observed that the above reduction of interest to terms of labor is based upon an analysis of the cost of producing and lending capital. This method of reasoning does not necessarily conflict with the theory that the compensation of capital is governed by its marginal productivity; indeed, it is admitted that until the compensation of capital reaches the point of equilibrium, its marginal productivity will probably be a more accurate measure than its cost. Professor Carver has, however, shown that the marginal productivity of capital falls toward the point of marginal cost, and in the condition of equilibrium coincides with it. In the above argument, which deals with the static state, this movement is deemed completed.



gravitation are always drawing it back. Such influences frequently constitute under existing conditions a factor of sufficient certainty to be included as an element of cost of production. For instance, the risk of loss may necessitate an increase of the rate of interest by several per cent. over what it would otherwise be in order to replace the capital which will under ordinary circumstances be lost in the course of business. These conditions do not, however, exist in the static state and cannot properly be considered in it.

The two complications mentioned having been disposed of, we are justified in saying that in the static state the cost of production of all commodities can be reduced to terms of the labor necessary to produce or acquire them. Now, as in the static state commodities exchange in the ratio which the cost of production of the one stands to the cost of production of the other, and as the cost of production can be expressed as the compensation of the units of labor expended, it follows that commodities exchange in the ratio in which the number of units of labor necessary for the production of the one stands to the number of units of labor required for the production of the other.

In actual life this formula applies, of course, as a tendency instead of as an actuality. Nevertheless it furnishes the center of gravitation toward which the prices of commodities ever tend and in which they will ultimately find repose.

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## THE RUSSIAN MONETARY REFORM

THOSE who have attempted to follow the successive steps in the recent Russian legislation upon monetary matters have unquestionably encountered many difficulties arising from the difference between the old and new rubles. The redemption of the old paper at the rate of 1 in specie to 1  $\frac{1}{2}$  in currency at once established a new (formal) basis for prices, wages, etc., and rendered many series of statistical returns, extending over a period of recent years, incomprehensible to those who failed to remember that a currency ruble before the monetary reform was a unit very different from the new gold ruble. Russian debt returns have been stated sometimes in old currency rubles, sometimes in old gold rubles, and sometimes in gold rubles of the new system. Again, the series of important measures, each ordinarily representing but one step in the reform movement, has been difficult to remember